



TinyTrackGPS

ARDUINO®

TINYTRACKGPS

VERSION

V0.4

A simple track GPS to SD card logger.



This program is written in C/C++ for Arduino © UNO R3 and other compatible microcontrollers based on Atmega328 and similar.

It is tested on:

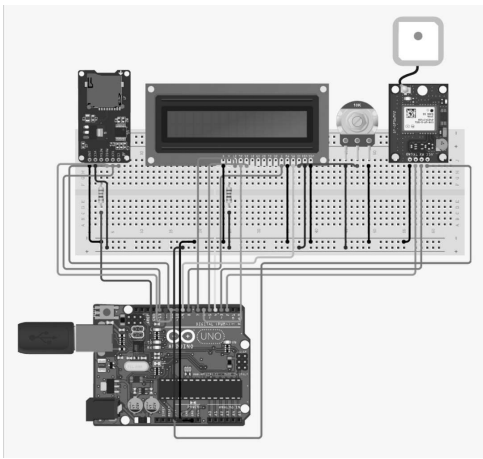
- UNO R3 board (Arduino UNO compatible board based on Atmega328).
- Lgt8f328p (a replacement Arduino Pro Mini). Tested v0.1 and v0.2.

License GPLv3

List of componets

This project use components list above:

- Arduino © UNO board or equivalent AVR.
- NMEA 6 module.
- MicroSD module.
- LCD 16×2 char display module.
- Bluetooth module. (Optional)
- Switch for select visual data on LCD.(Pin8 and GND)



Source

TinyTrackGPS is free software, see **License** section for more information. The code is based and get parts of the libraries above:

- TinyGPS library, Mikal Hart (<https://github.com/mikalhart/TinyGPS>).
- Ticker librry, Stefan Staub (<https://github.com/sstaub/Ticker>).
- Low-Power library, rocketscream (<https://github.com/rocketscream/Low-Power>).
- SD library, Arduino Standard Libraries (Arduino IDE).
- SoftwareSerial library, Arduino Standard Libraries (Arduino IDE).
- LiquidCrystal library, Arduino Standard Libraries (Arduino IDE).

Working

It works getting info from NMEA module every second and save it into de log file. Format is:

```
HH:MM:SS,YY.YYYYYY,XX.XXXXXX,ALT,UTM
```

Like this:

```
12:42:47,37.990493,-4.785790,571,30S 343186 4206265
12:42:48,37.990276,-4.785741,571,30S 343190 4206240
12:42:49,37.990062,-4.785705,571,30S 343193 4206216
12:42:50,37.989860,-4.785694,571,30S 343193 4206194
...
```

Where:

- HH - Hours from GPS UTC.

- MM - Minutes.
- SS - Seconds.
- YY.YYYYYY - Degree of latitude.
- XX.XXXXXX - Degree of longitude.
- ALT - Altitude in meters.
- UTM - Coordinates in UTM format(WGS84): Zone Band X Y (00A XXXXXX YYYYYYY)

```

1   Time,latitude,longitude,alt,utm
2   06:07:24,38.016925,-4.780960,511,30S 343666 4209189
3   06:07:25,38.016914,-4.780968,511,30S 343665 4209188
4   06:07:25,38.016914,-4.780968,511,30S 343665 4209188
5   06:07:25,38.016914,-4.780968,511,30S 343665 4209188
6   06:07:25,38.016914,-4.780968,511,30S 343665 4209188
7   06:07:25,38.016914,-4.780968,511,30S 343665 4209188
8   06:07:25,38.016914,-4.780968,511,30S 343665 4209188
9   06:07:25,38.016914,-4.780968,511,30S 343665 4209188
10  06:07:25,38.016914,-4.780968,511,30S 343665 4209188
11  06:07:33,38.016937,-4.781087,511,30S 343655 4209191
12  06:07:34,38.016910,-4.781114,511,30S 343653 4209188
13  06:07:35,38.016899,-4.781131,511,30S 343651 4209187
14  06:07:36,38.016910,-4.781143,511,30S 343650 4209188
15  06:07:37,38.016914,-4.781162,511,30S 343649 4209189
16  06:07:39,38.016891,-4.781203,511,30S 343645 4209186
17  06:07:40,38.016880,-4.781214,511,30S 343644 4209185
18  06:07:41,38.016872,-4.781234,511,30S 343642 4209184

```

For conversion to UTM coordinates it has been implemented library UTMconversion.h

Example of use:

```

#include "UTMconversion.h"

float flat = 37.8959210;
float flon = -4.7478210;

GPS_UTM utm;

void setup() {
  char utmstr[] = "30S 123456 1234567";

  Serial.begin(9600);

  utm.UTM(flat, flon);
  sprintf(utmstr, "%02d%c %ld %ld", utm.zone(), utm.band(), utm.X(), utm.Y());
  Serial.println(utmstr);
}

```

```
}  
  
void loop() {  
  
}
```

File is named as:

YYYYMMDD.csv Example: 20210216.csv

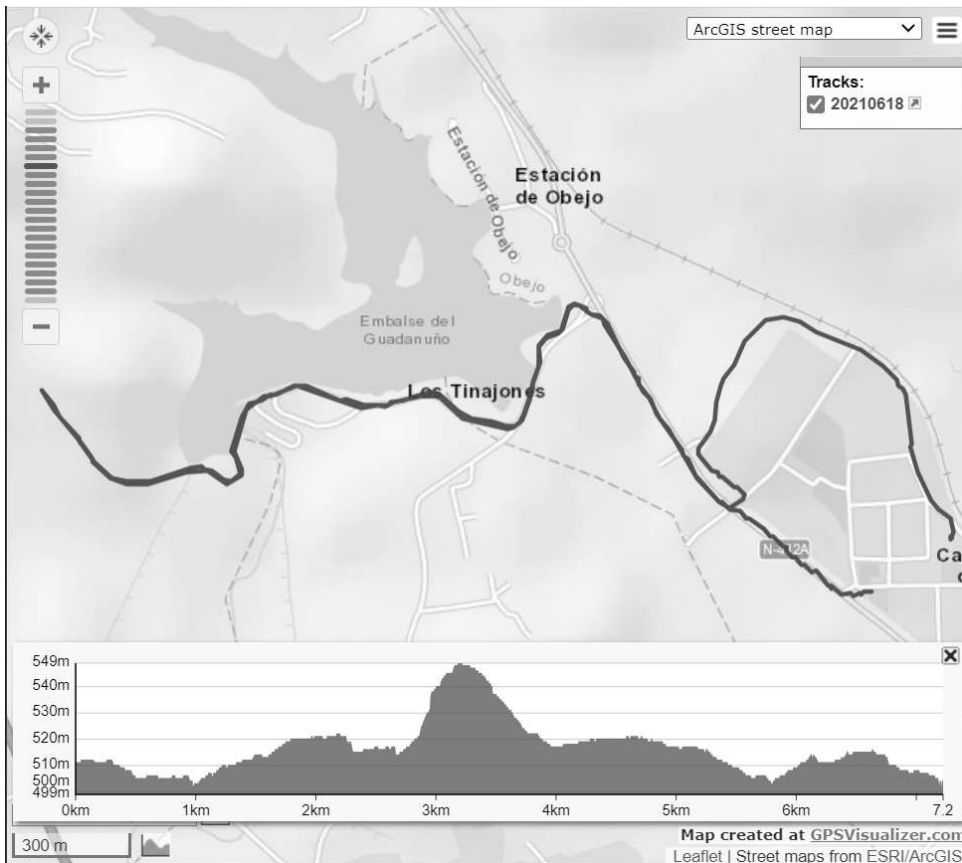
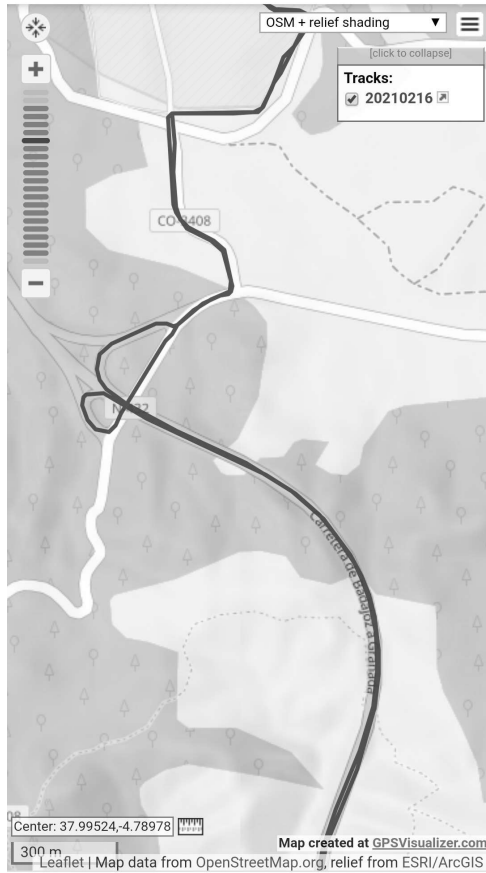
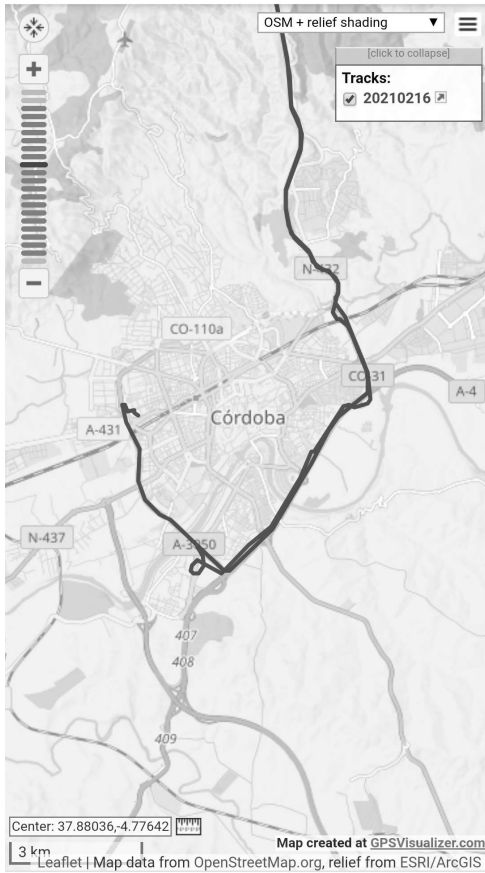
Where:

- YYYY - Year 4 digits format.
- MM - Mouth.
- DD - Day.

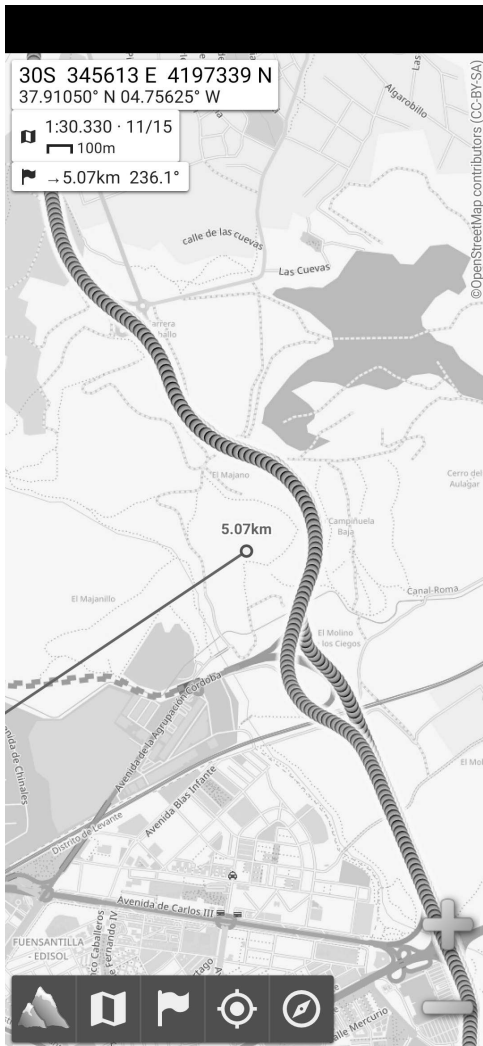
Low-Power the library is used to reduce power consumption and gain greater autonomy implementing the project portably using lithium batteries.

Draw track on map

You can upload the file and get the draw on a map using GPS Visualizer.



Or using apps like AlpineQuest.



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